UTILITY APPLICATION

Express Mail ER 092089854
October 2, 2003

Docket KM-GEL-2

IMPLANTS FOR REPLACING CARTILAGE, WITH NEGATIVELY-CHARGED HYDROGEL SURFACES AND FLEXIBLE MATRIX REINFORCEMENT

ABSTRACT

A permanent non-resorbable implant allows surgical replacement of cartilage in articulating joints, using a hydrogel material (such as a synthetic polyacrylonitrile polymer) reinforced by a flexible fibrous matrix. Articulating hydrogel surface(s) are chemically treated to provide a negative electrical charge that emulates the negative charge of natural cartilage, and also can be treated with halogenating, cross-linking, or other chemical agents for greater strength. For meniscal-type implants, the reinforcing matrix can extend out from the peripheral rim of the hydrogel, to allow secure anchoring to soft tissue such as a joint capsule. For bone-anchored implants, a porous anchoring layer enables tissue ingrowth, and a non-planer perforated layer can provide a supportive interface between the hard anchoring material and the softer hydrogel material.